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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

April G. KOHRT

Application No.: 08/951,754

Filed: October 16, 1997

For: INTAKE AIR HEATER AND AIR
DELIVERY ASSEMBLY FOR
ENGINES

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Group Art Unit: 3402

Examiner: Unassigned

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21/01/98
J. D. Burchard

AMENDMENT UNDER 37 C.F.R. § 1.607

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

In accordance with 37 C.F.R. § 1.607, please amend the subject application by adding the following claims (corresponding to claims 1-7, and 10-13 of U.S. Patent No. 5,595,164 issued January 21, 1997):

21. A heating device for use in an internal combustion engine comprising:
a frame including connecting means for attaching said frame to an engine and a recessed body portion having an aperture;
an electric heating element coupled to said frame;
a terminal assembly connected to said heating element for conducting an electric current thereto, said terminal assembly passing through said aperture in said recessed body portion, said terminal assembly including a first portion connected to said heating element and a second portion removably engageable with said first portion, said second portion being disposable through an opening in the engine for engagement with the first portion of the terminal assembly; and
grounding means electrically connected to said heating element.

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22. The heating device of claim 21 wherein said heating element has a first end and a second end, wherein said first portion of said terminal assembly is electrically connected to said first end of said heating element and wherein said second end of said heating element is electrically connected to said grounding means.

23. The heating device of claim 22 wherein said first portion of said terminal assembly includes a bolt and a union nut cooperating to connect said first end of said heating element to said frame, a plurality of insulators arranged to electrically isolate said bolt from said frame, and wherein said second portion of said terminal assembly includes a double ended stud connected to said union nut and a power source.

24. The heating device of claim 23 wherein said grounding means includes a grounding strap coupled to said frame by a threaded bolt.

25. The heating device of claim 21 wherein said recessed body portion of said frame includes side walls having an upper edge and a lower portion, and wherein said connecting means includes a perimeter mounting member extending substantially perpendicularly from said upper edge of said side walls.

26. The heating device of claim 25 wherein said connecting means further includes a plurality of mounting bolts and wherein said perimeter mounting member includes a plurality of passages sized to cooperatively engage said mounting bolts whereby said frame is attached to the cylinder head of an internal combustion engine.

27. The heating device of claim 26 wherein said recessed body portion includes hubs projecting from said side walls to form a C-channel and wherein said heating device further includes a C-shaped mounting element disposed within said C-channel, said C-shaped mounting element having insulating members associated therewith and said insulating members connected to said heating element.

28. A heating device for use in an internal combustion engine comprising:
a parallelepiped shaped frame including side walls having an upper edge and a lower portion,
at least one of said side walls having an aperture formed therein and a flange connected to an upper edge of the side walls and extending perpendicularly therefrom;
a heating element connected to said frame;

a terminal assembly including a first portion connected to a first end of the heating element and a second portion removably engageable with said first portion whereby said heating device may be placed into recessed engagement with a cylinder head and whereby said second portion connects a battery to said first portion through an opening formed in the cylinder head; and

grounding means electrically connected to said second end of said heating element.

29. The heating device of claim 28 wherein said first portion of said terminal assembly is disposed within an area bounded by said side walls.

30. The heating device of claim 29 wherein said frame includes at least one transverse support member connecting said side walls and a vertical support member projecting perpendicularly from at least one of said at least one transverse support members and wherein said first portion of said terminal assembly includes a bolt sized to cooperatively engage an opening formed in said vertical support member and threaded to removably engage a first end of a union nut, a plurality of insulators arranged to electrically isolate said bolt from said vertical support member.

31. The heating device of claim 30 wherein said second portion of said terminal assembly includes a double ended stud having a first end coupled to a second end of said union nut and a second end connected to a power source whereby an electric current is conveyed to said heating element.